IN PRACTICE

Plastic specula: can we ease the passage?

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Background: For many years, genitourinary physicians have taught that specula should be used without lubrication other than water, as it was assumed that gel would interfere with the processing of samples, but there seems little evidence to support this. Many clinics are now using plastic specula to avoid reusable instruments, and one of the commonest problems with such specula is increased friction.

Methods: We looked at the effect of Aquagel on the culture of different dilutions of *Neisseria gonorrhoeae* on three standard laboratory media. The effect of Aquagel on the chlamydial strand displacement assay (SDA) test was also assessed by mixing different amounts of Aquagel with the positive and negative control and processing in the usual way.

Results: There was found to be no inhibition of culture following emulsification of *N gonorrhoeae* in Aquagel at any concentration. All the results for the chlamydial SDA test were satisfactory following mixing with Aquagel.

Conclusion: We think that the clinician should now be more confident that if a difficult examination requires the use of a lubricant, the test results will not be compromised.

For many years, genitourinary physicians have taught that specula should be used without lubrication other than water, as it was assumed that gel would interfere with the processing of samples. King *et al*,[1] for example, made this statement but there seems little evidence to support it. Many more clinics are now using plastic specula, in order to avoid reusable instruments. One of the commonest problems with such specula is the increased friction making insertion more difficult and more uncomfortable for the women. So is it possible to use gel in difficult cases without compromising the samples taken? Recent studies on gel used during cervical cytology sampling have shown no adverse effect on outcome.[2 3] A study of lubricant use before sampling for a *Chlamydia trachomatis* polymerase chain reaction (PCR) test was also encouraging.[4]

We chose to investigate the effect of lubricating gel on *Neisseria gonorrhoeae* culture in an in vitro setting, and on *Chlamydia trachomatis* strand displacement assay (SDA) test.

METHOD

We looked at the effect of Aquagel on the culture of different dilutions of *N gonorrhoeae* on three standard laboratory media. Aquagel is the standard water based gel available in our clinic and comes as a single use sachet. It has been sterilised by irradiation, and does not contain any bacteriostatic or bactericidal additive. The *N gonorrhoeae* used was from the National Collection of Type Cultures 12700 (NCTC) culture maintained in the laboratory for control purposes. This was chosen as approval was not sought to use samples from specific patients.

Dilutions of *N gonorrhoeae* were created by taking different numbers of colonies and emulsifying them in 30 µl of gel. Once emulsification was complete the samples were plated immediately onto blood agar, chocolate agar, and gonococcus selective media (Modified New York Medium containing vancomycin, colistin, amphotericin B, and trimethoprim). The samples were incubated at 37°C in a CO_2 rich environment, and the plates were read at 48 hours. A control was included in which the *N gonorrhoeae* was emulsified with sterile distilled water.

The effect of Aquagel on the SDA test was also assessed. BD ProbeTec ET is available in the laboratory. Volumes of 100 µl, 50 µl, and 25 µl of gel were mixed with 2 ml each of the chlamydia positive and negative controls. The positive control contains two cloned chlamydia target regions. Once the samples were mixed, they were placed directly in the buffer, and processed straight away according to the manufacturer's recommendations. The procedure was carried out four times in order to obtain an average result for each concentration of Aquagel.

RESULTS

The culture plates were read after 48 hours. Dense luxuriant growth of colonies was found on the control and all other plates. There were numerous healthy colonies that were close together and, in some areas confluent and on all plates there were more than 30 colonies. The colonies were confirmed as *N gonorrhoeae* using the oxidise test, a Gram stain, and a sugar fermentation test. There was found to be no inhibition of culture following emulsification of *N gonorrhoeae* in Aquagel at any concentration. The results are detailed in table 1. The cultures were repeated on three occasions, always with the same result.

The positive and negative chlamydia results were read, and an average MOTA (method other than acceleration) result was calculated for each concentration of gel. The results are shown in table 2. The MOTA score is a metric used to assess the magnitude of signal generated as a result of the reaction. A result of $\geqslant$2000 is indicative of a positive chlamydia result and $<$2000 of a negative result. The results obtained were all satisfactory.

DISCUSSION

The observations reported here indicate that growth of *N gonorrhoeae* is not inhibited by the presence of a sterile lubricating gel that does not contain a bacteriostatic or bactericidal additive. A previous study by Singh *et al* in 1976[5] showed considerable inhibition when using a lubricant that is no longer available and therefore recommended that lubricants should be avoided. However, they did not state whether the lubricant contained any bactericidal agent, and their results from the same study but using K-Y jelly, which does not contain a bactericide, were very encouraging. We spread the mixed samples directly onto the culture plates, which is analogous with the practice in our clinic where

Abbreviations: MOTA, method other than acceleration; NCTC, National Collection of Type Cultures; PCR, polymerase chain reaction; SDA, strand displacement assay

Table 1 The effect of diluting *Neisseria gonorrhoeae* in Aquagel on culture results

Number of colonies emulsified in 30 µl of gel	Media		
	Blood agar	Chocolate agar	Selective media
2–5	+++	+++	+++
5–7	+++	+++	+++
7–12	+++	+++	+++
Control emulsified in sterile distilled water	+++	+++	+++

+ Indicates 0–10 colonies per plate; ++ indicates 11–30 colonies per plate; +++ indicates >30 colonies per plate.

Table 2 The effect of mixing Aquagel with the SDA chlamydia controls

	Average MOTA score (range)			
	25 µl Aquagel	50 µl Aquagel	100 µl Aquagel	Control
Positive control	16 056 (3595–30 416)	19 173 (6868–33 643)	19 278 (12 828–27 034)	41 444 (40 881–42 565)
Negative control	66 (0–161)	75 (0–123)	40 (0–157)	49 (0–89)

MOTA ⩾2000 indicates a positive result; MOTA <2000 indicates a negative result.

direct plating of gonorrhoea samples onto selective media takes place by the patient. In a clinic where this is not standard practice this may affect the result.

Our findings also demonstrate that lubricating gel does not affect the function of the chlamydia SDA test. This supports the findings of Uribasterra *et al*,[4] who looked at the effect of gel in a clinical setting on chlamydia PCR. We did not leave our samples in contact with the gel for long, where as there would normally be a delay between placing the sample in the buffer and transferring it to the laboratory for processing; however, as no live organism is required this may not affect the result, but this question could be addressed in a clinical trial.

Our study supports the view that using a simple sterile water based gel does not inhibit the culture of *N gonorrhoeae* or affect the use of chlamydia SDA tests. As this is an in vitro study, a randomised study in the clinical setting is needed to confirm that gel will not compromise sample results.

In conclusion, we believe that the clinician should now be more confident that if a difficult examination requires the use of a lubricant, the test results will not be compromised.

CONTRIBUTORS

The idea of the study, its planning, analysis of the data, and writing up were carried out by LK; JV helped in deciding the best laboratory tests to assess the hypothesis, and also carried out the practical work; PM provided supervision at all stages of the study.

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